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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,104	08/13/2001	Joachim Pohler	HMN-2-0016	9007

7590 11/29/2002

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EXAMINER	
GRIFFIN, WALTER DEAN	
ART UNIT	PAPER NUMBER
1764	8

DATE MAILED: 11/29/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/831,104	Applicant(s) POHLER ET AL.	
	Examiner Walter D. Griffin	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because the reference to the claiming the benefit under Title 35, United States, 120 of the PCT international application appears to be incorrect. This application is filed under 35 USC 371.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-13 are indefinite because the expressions "high vacuum" and "standard viscosity range" in step C) of claim 1 are relative expressions that are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claims 1-13 are also indefinite because, in step D) of claim 1, it is unclear what the "higher viscosity state" is higher than.

Claims 1-13 are also indefinite because the expression "the higher boiling range" in step D) of claim 1 lacks proper antecedent basis.

Claim 2 is also indefinite because the expression "concentrated watery alkaline solution" is a relative expression that is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 5 is also indefinite because the basis for the claimed concentration (i.e., weight percent, volume percent, etc.) is missing.

Claim 6 is also indefinite because the expressions "the feed" and "the reclaimed extraction medium" lack proper antecedent basis. Also, claim 6 is indefinite because it is unclear if the limitation in the parentheses is part of the claim.

Claim 10 is also indefinite because the expressions "the settling oil phase" and "the feed" lack proper antecedent basis.

Claim 11 is also indefinite because the expressions "the column head" and "the column end" lack proper antecedent basis. Also, claim 11 is indefinite because it is unclear if the limitations in the parentheses are part of the claim.

Claim 12 is also indefinite because it is unclear what compounds are encompassed by the expression "PCB substitutes". Therefore, the scope of the claim cannot be ascertained.

Claim 13 is also indefinite because of the expression "oil(s)". It is unclear if this expression encompasses various types of vegetable oils.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher et al. (4,360,420) in view of Sequeira, Jr. (4,328,092) and EP 0109366.

The Fletcher reference discloses a process for reprocessing waste oil by initially distilling the oil at a temperature ranging from 220° to 400°F (104° to 204°C) to remove a volatile forecut, water, gasoline, and the like. The residue oil resulting from this initial distillation is then distilled in a second step under a reduced pressure to form a fuel oil fraction and a residue fraction containing oil of lubricating viscosity. This residue fraction containing oil of lubricating viscosity is then distilled to remove lube oil fractions. Thin film evaporators may be used in the distillation steps. These lube oil fractions are then solvent extracted in an extraction column. See

col. 2, line 17 through col. 3, line 23; col. 3, line 64 through col. 4, line 68; col. 5, lines 54-66; col. 6, lines 45-61; and col. 7, lines 9-13.

The Fletcher reference does not disclose the use of NMP or NMF as the extraction solvents.

The Sequeira reference discloses the countercurrent solvent extraction of lube oils utilizing NMP as the solvent. Typical extraction temperatures range from 43° to 100°C. An extract phase is cooled and separated by gravity with the resulting secondary raffinate being returned to the extraction column. See col. 1, lines 13-61 and col. 2, line 48 through column 3, line 26.

The EP 0109366 reference discloses that extracting mineral oils with pyrrolidone derivatives removes PCB contaminants from the oil. See the entire document.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Fletcher by utilizing NMP as the extraction solvent in a counter-current process at temperatures within the range claimed in claim 9 as suggested by Sequeira because aromatics and other undesirable constituents will be removed thereby improving viscosity index, color, oxidative stability, thermal stability, and inhibition response. As shown by the EP 0109366 reference, the use of the NMP solvent would also have the advantage of removing PCB contaminants from the oil. Therefore, one having ordinary skill in the art would utilize PCB-containing oils in the process of Fletcher that utilizes NMP in an extraction step as suggested by Sequeira because the PCB's would be effectively removed. Also, returning a raffinate to the extraction column as suggested by Sequeira would have been obvious to one having ordinary skill in the art because increased yield of raffinate would result.

To the extent that the previously discussed references do not disclose all the claimed conditions, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the references by utilizing the claimed conditions because one would adjust conditions to provide the desired result of separation in the most efficient and effective way.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fletcher et al. (4,360,420) in view of Sequeira, Jr. (4,328,092) and EP 0109366 as applied to claim 1 above, and further in view of Habiby et al. (4,021,333).

The previously discussed references do not disclose an alkaline treatment.

The Habiby reference discloses a preliminary alkaline treatment of a used oil that is subsequently distilled and solvent extracted. The alkaline material may be potassium hydroxide and is added to the oil as an alkaline solution. The alkaline solution is typically 5 to 20% alkali by weight. Using this solution would necessarily provide an alkalinity reserve. See col. 3, line 57 through col. 4, line 7.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the previously discussed references by including an alkaline treatment as suggested by Habiby because metallic constituents of the used oil will be removed from the oil.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have added the alkaline solution during distillation because the alkaline treatment is conducted at elevated temperatures. Therefore, one would expect the alkaline

treatment to achieve the desired results if the alkaline solution is added during the distillation since the distillation is conducted at elevated temperatures.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Mannetje reference discloses a process for refining spent lube oils.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is 703-305-3774. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
November 22, 2002